including at least [one desired satellite] two desired satellites, wherein each of the [at least one] desired satellites have a trajectory associated therewith and a relative configuration within the satellite constellation;

determining a period of [rotation] orbit for each of the desired satellites;

A1 Concl'd.

determining a time dependent coverage of the satellite constellation based on the orbit period [of rotation] and the trajectory of each of the desired satellites;

tilting the trajectory of at least one of the desired satellites to reorient the satellite constellation without changing the relative configuration of the desired satellites within the satellite constellation to obtain a second coverage based on the time dependent coverage, the second coverage providing maximum coverage at the predetermined local times for the set of predetermined geographic locations; and

generating command signals for modifying the trajectory of the at least one desired satellite based on the tilted trajectory.

Sub C3

A2 cont.

5. (AMENDED) The method as recited in claim 1 wherein determining the orbit period [of rotation] includes determining if the trajectory of the at least one desired satellite is equatorial.

6. (AMENDED) The method as recited in claim 5 wherein determining the orbit period includes determining the orbit period [of rotation] according to the following if the trajectory is equatorial:

$$P = [\ m_s D_s D_N / (n D_N + m_s D_s)\ ],$$

where,

P is the orbit period with its sign indicating whether it is a direct or retrograde orbit;

n is an integer with its absolute value equal to the number of times that the satellite transverses the same geographic longitude within the repeating period;

m_s is the number of mean solar day per repeating period and must be a positive integer relatively prime to n;

D_s is the mean solar day, which is 24 hours or 1440 minutes; and

D_N is the nodal day which is the period of the earth-rotation relative to the ascending node or any point of the orbit plane.

A2 Cont'd

7. (AMENDED) The method as recited in claim 5 wherein determining the orbit period includes determining the orbit period [of rotation] according to the following if the trajectory is not equatorial:

where

$$P = \frac{T}{n + m_N}$$

m_N is the number of nodal day per repeating period which must be a positive integer relatively prime to n; and

T is the repeating period that the coverage pattern starts to repeat itself.

A3

10. (AMENDED) A system for maximizing satellite constellation coverage at predetermined local times for a set of predetermined geographic locations, the satellite constellation having a first coverage and including at least [one desired satellite] two desired satellites wherein each of the [at least one] desired satellites have a trajectory associated therewith and a relative configuration within the satellite constellation, the system comprising:

a processor operative to determine a period of [rotation] orbit for each of the desired satellites, determine a time dependent coverage of the satellite constellation based on the orbit period [of rotation] and the trajectory of each of the desired satellites, and to tilt the trajectory of at least one of the desired satellites to reorient the satellite constellation without changing the relative configuration of the desired satellites within the satellite constellation to obtain a second coverage based on the time dependent coverage, the second coverage providing maximum coverage at the predetermined local times for the set of predetermined geographic locations; and

means for generating command signals for modifying the trajectory of the at least one desired satellite based on the tilted trajectory.

Sub C6

A4

15. (AMENDED) The system as recited in claim 10 wherein the processor, in determining the orbit period [of rotation], is further provided for determining if the trajectory of the at least one desired satellite is equatorial.

16. (AMENDED) The system as recited in claim 15 wherein the processor, in determining the orbit period, is further operative to determine the orbit period [of rotation] according to the following if the trajectory is equatorial:

$$P = [\ m_s D_s D_N \ / \ (nD_N + m_s D_s)\ ],$$

where,

P is the orbit period with its sign indicating whether it is a direct or retrograde orbit;

n is an integer with its absolute value equal to the number of times that the satellite transverses the same geographic longitude within the repeating period;

m_s is the number of mean solar day per repeating period and must be a positive integer relatively prime to n;

D_s is the mean solar day, which is 24 hours or 1440 minutes; and

D_N is the nodal day which is the period of the earth-rotation relative to the ascending node or any point of the orbit plane.

17. (AMENDED) The system as recited in claim 15 wherein the processor, in determining the orbit period, is further operative to determine the orbit period [of rotation] according to the following if the trajectory is not equatorial:

where

$$P = \frac{T}{n + m_N}$$

m_N is the number of nodal day per repeating period which must be a positive integer relatively prime to n; and

T is the repeating period that the coverage pattern starts to repeat itself.